DOCUMENT RESUME

ED 307 415 CE 052 478

AUTHOR Vucinich, Janet; And Others
TITLE Ideabook on Critical Thinking for GED Instructors in Adult Basic Education.
INSTITUTION New Mexico Univ., Albuquerque. Dept. of Educational Administration.
SPONS AGENCY New Mexico State Dept. of Education, Santa Fe. Div. of Vocational, Technical, and Adult Education.
PUB DATE Feb 89
NOTE 60p.; For related documents, see CE 052 477-480.
PUB TYPE Guides - Classroom Use - Guides (For Teachers) (052)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS *Adult Basic Education; *Critical Thinking; *High School Equivalency Programs; Instructional Materials; Learning Activities; *Problem Solving; Teacher Developed Materials; Teaching Methods
IDENTIFIERS *General Educational Development Tests

ABSTRACT

This handbook provides General Educational Development (GED) teachers with information on critical thinking and teaching ideas to support a commitment to the idea of critical thinking as an essential tool for adult basic education (ABE) students. The importance of critical thinking skills for GED students is emphasized. Sample questions from the GED preview book are followed by an analysis of the cognitive skills needed to answer each correctly. Critical thinking is then defined. Factors that affect critical thinking are identified, and implications for the classroom are discussed. The activities section begins with a discussion of questioning strategies that will encourage critical thinking. Teaching suggestions follow for building activities around commercially prepared materials and designing and using teacher-made activity sheets. Sample materials are provided. A critical thinking handout is followed by an eight-item bibliography. (YLB)

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IDEABOOK ON CRITICAL THINKING FOR GED INSTRUCTORS IN ADULT BASIC EDUCATION

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IDEABOOK ON CRITICAL THINKING FOR GED INSTRUCTORS IN ADULT BASIC EDUCATION

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Acknowledgements

Our thanks to the following:

Susanna Gilbert
Suzanne Kurman
Mickey Hughes
for their editorial and wordprocessing assistance

Jackie P. Shipp
for consultation on this project

and

The Quintana Learning Center/DABCC
Santa Fe Community College
for the use of GED materials

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CRITICAL THINKING:

It is almost impossible to open a newspaper or magazine today and not find a story or an article that in some way demonstrates the importance of critical thinking in today's world. Some of these articles address the issue directly, describing basic skills needs in the workforce or reporting on a recent study of the reasoning abilities of our youth. Others provide evidence of "uncritical thinking" in personal, community, social, or political arenas. These stories contribute to a growing body of evidence that critical thinking skills are essential tools in any individual's "toolbox for life." So, critical thinking extends far beyond the classroom. It is not a mysterious mental operation that only takes place in academic settings but an essential part of everyday thought and deliberation.

Certainly business and industry has made it clear that the workers of tomorrow will be expected to be critical thinkers. The definition of basic skills currently used by employers includes not only the ability to read and write but also communication and problem-solving skills. A recent article, "Workplace Basics: Skills Employers Want", reports that *"the days are gone when a command of the three Rs is enough to get and keep a job. To be successful today, workers must be able to...identify sophisticated problems and make crucial decisions."* Education programs need to help students build analytical reasoning abilities which enable them to more readily transfer their experience from one job to another...from one situation to another.

Research is also finding a link between critical thinking and some of the social issues troubling the nation. A recent study by the National Assessment of Educational Progress found that only a small percentage of the young people sampled could "reason effectively." Populations with the most serious skills deficits were also more at risk for being unemployed, becoming single-parents, dropping out of school, and turning to crime.

Thus, in order to take better control of our lives on a personal level, be more effective workers, and make informed contributions as citizens we must apply critical thinking skills in all aspects of our lives.

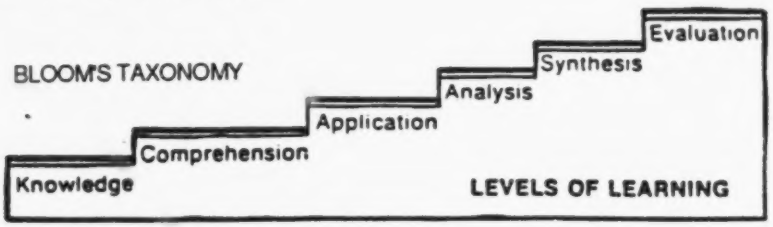
CRITICAL THINKING: What's on the GED Test?

While the value of critical thinking as a tool in everyday life is clear, GED students also have a specific need for improved critical thinking skills: the GED Test.

Since August of 1988, we have been using a new version of the GED Test in New Mexico. Although this test reflects many recommendations of the Test Specifications Committee, major changes resulted from their belief that *"the new tests should demand more of the examinees in the way of high level thinking and problem-solving skills."*

Reasoning skills that enable a person to understand, explain and evaluate new experiences were viewed as a vital component to the GED program of study. The revised GED Tests incorporate these beliefs and will require much higher level analytical skills of our GED students.

In the preview book, The 1988 Tests of General Educational Development, prepared by the staff of the GED Testing Service, this emphasis on higher level cognitive skills was clearly demonstrated. Their questions were developed according to cognitive levels based on an adaptation of Bloom's taxonomy (below).



Knowledge	Simple recall of material
Comprehension	Restating or reorganizing material to show understanding
Application	Problem-solving or applying ideas in new situations
Analysis	Separating ideas into component parts for examination
Synthesis	Combining ideas into a statement or product new to the learner
Evaluation	Judging by using self-produced criteria or established standards

Using the four categories selected by the GED staff to classify the questions on the Social Studies and Science Tests, the following picture emerges:

(1) Comprehension--20%. These items require understanding the meaning and intent of written and graphic stimulus material. They measure the ability to:

- restate information
- summarize ideas
- identify implications

(2) Application--30%. These items require the ability to use information and ideas in a concrete situation. They measure the ability to:

- use given or remembered ideas in a context other than that provided

(3) Analysis--30%. These items require the ability to break down information and to explore relationships of component ideas. They measure the ability to:

- distinguish facts from hypotheses or opinions
- recognize unstated assumptions
- distinguish conclusion from supporting statements
- identify cause and effect relationships

(4) Evaluation--20%. These items require the ability to make judgments about the validity or accuracy of information or methods based on provided or assumed criteria. They measure the ability to:

- assess the adequacy or appropriateness of data to substantiate hypotheses, conclusions, or generalizations
- recognize the role values play in beliefs and decision making
- assess the accuracy of facts as determined by proof or documentation
- indicate logical fallacies in arguments

That preview book includes sample questions followed by an analysis of the cognitive skills needed to correctly answer each. The following pages are excerpts from the Social Studies and Science sections.

Sample Social Studies Items

Item 1 refers to the following information.

After the Civil War, the cause of black voting rights was aided by three new amendments to the Constitution. The Thirteenth Amendment outlawed slavery. The Fourteenth Amendment granted blacks national and state citizenship. Finally, the Fifteenth Amendment granted the right to vote to any male adult, regardless of race.

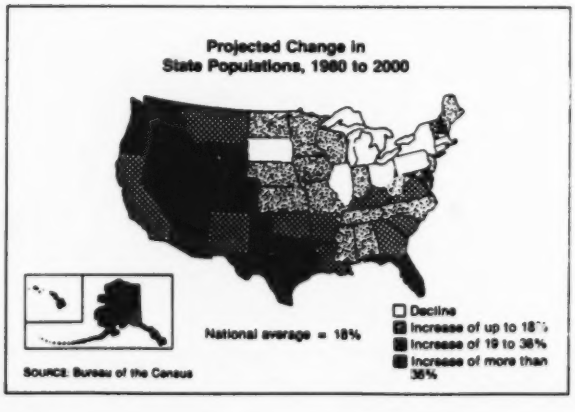
1. Which of the following best describes the purpose of these amendments?

   (1) to guarantee economic opportunity for freedom
   (2) to grant citizenship rights to black Americans
   (3) to allow slaves the right of assembly
   (4) to protect all citizens from illegal search and seizure
   (5) to guard against the abuse of slavery

2. When earlier learning interferes with the learning of new material or new skills, it is known as negative transfer. Which of the following is an example of negative transfer?

   (1) A child who can draw with crayons learns to write on a blackboard with chalk.
   (2) Student drivers practice driving on a simulator before getting into a car.
   (3) An employee who uses a personal computer at home manages a data processing system at work.
   (4) A typist switches readily between manual and electric typewriters.
   (5) A person who first learned German in school finds it difficult to learn Spanish.

Items 3 to 6 refer to the following map.


Projected Change in
State Populations, 1980 to 2000
National average = 18%
Decline
Increase of up to 18%
Increase of 19 to 36%
Increase of more than 36%
SOURCE: Bureau of the Census

3. Based on this map, which of the following states is expected to have the largest percentage increase in population?

   (1) New York
   (2) Arizona
   (3) California
   (4) Illinois
   (5) Georgia

4. According to the map, a construction company established in the late 1980's or 90's would be most likely to explore new building projects in which of the following areas?

   (1) Great Lakes
   (2) New England
   (3) North Central
   (4) South Atlantic
   (5) Pacific Northwest

5. Which of the following statements is the most likely explanation for the projected population increase in Florida, Texas, and New Mexico?

   (1) More employment opportunities are becoming available in these areas.
   (2) The need for goods and services is declining in these areas.
   (3) The average age of retirement is increasing in these areas.
   (4) A general population shift to the Pacific Northwest is occurring.
   (5) More women are entering the work force.

6. Which of the following statements is suppported by the data provided by the map?

   (1) The standard of living will improve in Texas and Idaho.
   (2) The total number of Congressional representatives in the country will decrease.
   (3) Congressional representation may decrease in Pennsylvania and New York.
   (4) The overall population of the country will decrease.
   (5) Congressional representation will increase in Pennsylvania and New York.

Items 7 to 8 refer to the following article.

One important component of crime is often neglected: the victim. John Laub, assistant professor of criminal justice at Northeastern University, believes victims are as important as criminals in understanding the dynamics of crime. He tried to learn more about why some groups of people are victimized more than others.

In order to understand victims, their age, race, sex, geographic location, and the kind of crime committed against them must be determined. In The National Crime Survey, what the data reveals is that the typical victim of a street crime usually is male, between the ages of 16 and 25. This also is generally true for the typical criminal in street crimes.

With the exception of rape, fewer crimes are committed against women and the elderly than against men. Laub said this is a result of the high "fear rate" women and the elderly have.

"Because they are more afraid of crime, women and older people tend to be more cautious," Laub noted. "They don't walk along dark streets, or go into neighborhoods which are known to be in high crime areas."

Conversely, men, specifically those in the 12 to 19 age bracket, have low fear of crime. They usually do not change their behavior when they are in a high crime-risk situation, and therefore have a higher rate of victimization.

From Maureen Staley, "Fear Lowers The Odds." *Northeastern Alumni Magazine*, Vol. 8, No. 5, May/June, 1983.

7. Which of the following is the central hypothesis suggested by Laub's study?

(1) Men are the victims of crime more often than women.
(2) Victims tend to be fearful people.
(3) Women witness more street crime than men.
(4) Young men fear crime less than do women and the elderly.
(5) The typical victim of street crime is cautious.

8. Which of the following statements in the article is best supported by evidence presented in the article?

(1) Victims are as important as criminals in understanding the crime rate in the country.
(2) Crime occurs more frequently in metropolitan areas than in rural areas.
(3) Men are victims of crime less often than women.
(4) Men between the ages of 16 and 25 are more likely to be the victims of street crime.
(5) Men are more often the victims of crime because they have less fear.

Political systems are classified according to the way the power to govern is distributed among groups in a society. Listed below are five types of political systems and brief descriptions of how power is distributed.

(1) direct democracy—all qualified individual citizens are free to participate in the lawmaking process

(2) representative democracy—legislators, elected by the people in free and open elections, debate and vote on public issues to determine the laws

(3) oligarchy—a small privileged group, unchecked by a legislature or the citizens, determine the laws

(4) constitutional monarchy—a constitution recognizes the inherited ceremonial power of a royal family, but a representative assembly determines the laws

(5) dictatorship—an individual who holds absolute power, unchecked by a legislature or the citizens, determines the laws as well as economic and social policy

Each of the following statements describes a process that takes place in one of the political systems described above. Choose the system in which the process described would most likely occur. The categories may be used more than once in the set of items but no one question has more than one best answer.

9. A group of men and women, chosen by popular vote in their communities, meet in the nation's capital to discuss and vote on a proposal to buy new aircraft for the nation's air force. The type of political system described is a(n)

(1) direct democracy
(2) representative democracy
(3) oligarchy
(4) constitutional monarchy
(5) dictatorship

10. A military force succeeds in taking over a nation's capital and overthrowing the government. The rebel leader disbands the national legislature and establishes himself as president and sole lawmaker. The type of political system described is a(n)

(1) direct democracy
(2) representative democracy
(3) oligarchy
(4) constitutional monarchy
(5) dictatorship

Answer Key

1. Content: History/Political Science
   Cognitive Level: Comprehension
   Objective: Summarizes information about amendments to the Constitution
   Answer: 2

   This item tests a simple comprehension skill: it requires that the examinee summarize historical facts. The answer is the most precise summary of the rationale for and the effect of the three amendments.

2. Content: Behavioral Science/Psychology
   Cognitive Level: Application
   Objective: Identifies a human behavior
   Answer: 5

   This item tests comprehension and application skills, requiring the examinee to understand first the meaning of a concept in behavioral psychology and, second, to identify an example of the concept in everyday life. The answer is the only learning experience, among the choices provided, in which previous experience blocks acquiring a new skill.

3. Content: Geography/Economics
   Cognitive Level: Comprehension
   Objective: Interprets data provided by a map
   Answer: 2

4. Content: Geography/Economics
   Cognitive Level: Application
   Objective: Uses data provided by a map to make a decision
   Answer: 5

5. Content: Geography/Economics
   Cognitive Level: Analysis
   Objective: Identifies probable cause for developments portrayed on a map
   Answer: 1

6. Content: Geography/Economics/Political Science
   Cognitive Level: Evaluation
   Objective: Recognizes adequacy of data provided by a map
   Answer: 3

   Items 3-6 test all four cognitive levels as well as prior knowledge in the social studies. The set tests the ability to interpret information provided by a map; to apply information, concepts, and principles in geography, economics, and political science; to explore relationships between information and ideas; and to judge whether adequate evidence is provided to draw certain conclusions.

   For item 3, alternative 2 is the correct answer, chosen as a result of reading and understanding the implications of the map legend and identifying Arizona, in the Southwest, as the area of largest projected growth. For item 4, alternative 5 is the correct answer, requiring comprehension of the information provided by the map, identification of regions and their projected growth potential, and recognizing the reasonable link between population growth and the demand for land development. Item 5 requires the examinee to identify the economic development that might reasonably lead to or cause a population increase, especially a shift in population from one part of the country to another. Alternative 1 is the key, linking population increase with job opportunities. Item 6 tests the ability to judge which prediction is reasonable based on evidence provided by the map. Alternative 3 is the key as the projected population decrease in Pennsylvania and New York may lead to a reapportionment of congressional representation.

   This item set illustrates how graphic material generates information and questions that integrate several content areas and test thinking skills that range from simple comprehension to the more complex application, analysis, and evaluation processes.

7. Content: Behavorial Science/Sociology
   Cognitive Level: Analysis
   Objective: Identifies an hypothesis and distinguishes it from a fact
   Answer: 4

8. Content: Behavorial Science/Sociology
   Cognitive Level: Evaluation
   Objective: Evaluates information sources and draws warranted conclusions
   Answer: 4

   This item set tests the two higher level thinking skills, analysis and evaluation, with a sociological content relevant to adult learners. Item 7 requires the examinee to understand the ideas and information presented in the article and then to distinguish between accurate and inaccurate relationships among groups of people, attitudes, and situations. The central hypothesis of Laub's study is the key, alternative 4, that young men fear crime less than do women and the elderly. Item 8 asks the examinee to make a judgment about the validity of certain conclusions based upon an accurate understanding of information presented and methods used to gather evidence. Alternative 4 is the key because it is a finding substantiated by evidence gathered in a national survey.

9. Content: Political Science/History
   Cognitive Level: Application
   Objective: Examines and identifies political systems
   Answer: 2

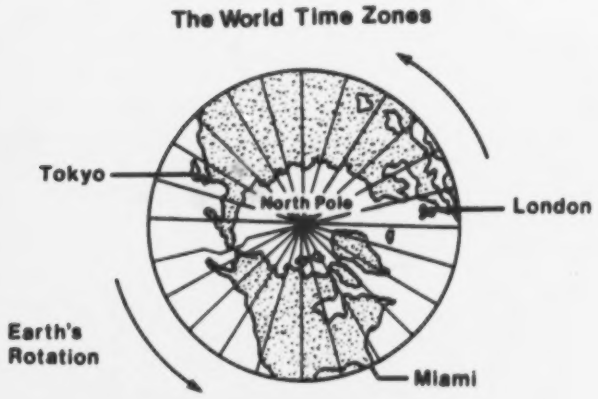
10. Content: Political Science/History
    Cognitive Level: Application
    Objective: Examines and identifies political systems
    Answer: 5

11. Content: Political Science/History
    Cognitive Level: Application
    Objective: Examines and identifies political systems
    Answer: 1

Items 9 to 11 represent a new item type designed to challenge examinees to apply or use information. A variety of ideas, events, issues, systems, organizations, etc. in the social studies can be explored through this new format. The format requires examinees to comprehend predefined categories and to classify new information within these categories. In the sample set provided, the examinee must first understand the definitions of the political systems presented, and then link the processes and events described to the corresponding systems. For example, item 9 describes the legislative process of the United States Congress and fits nicely into the prescribed definition of a representative democracy.

Sample Science Test Items

Item 1 is based on the following diagram.



1. The diagram above represents the time zones in the Northern Hemisphere. A telephone operator places a call from Miami at 8 a.m., June 1st, to London. The operator is asked what time it is in London. What is the operator's response?

   (1) 1 a.m.
   (2) 1 p.m.
   (3) 3 a.m., May 30th
   (4) 3 p.m., June 1st
   (5) 8 a.m.

2. Two factors influence a gas-filled container: one is the temperature of the gas and the other is the amount of pressure inside. If more gas is added or the temperature increases, the pressure inside increases.

   If a truck driver is traveling on a hot summer day, which of the following situations will be true if the driver begins the trip with properly inflated tires?

   (1) The tire pressure may drop in the heat.
   (2) The tires will expand even further.
   (3) The tires may go flat as the temperature drops.
   (4) Additional pressure may be required to maintain the temperature.
   (5) If the temperature increases the tire volume may decrease.

Items 3 and 4 refer to the following advertisement.

An advertisement for a popular salad oil states:

A. composed of 100% sunflower seed oil
B. the great salad oil you've always loved
C. absolutely no cholesterol
D. used in the finest restaurants

3. Which of the above statements is most likely based on facts rather than on opinion?

   (1) A only
   (2) B only
   (3) A and B only
   (4) A and C only
   (5) B and D only

4. Which of the above statements could *not* be proven in a chemical analysis of the salad oil?

   (1) A only
   (2) B only
   (3) A and B only
   (4) A and C only
   (5) B and D only

Items 5 to 10 are based on the following information. Organisms are classified according to the various ways they relate to each other. Below are five types of relationships.

(1) cannibalistic = an organism feeds on the flesh of its own kind

(2) mimicry = one organism resembles another in color, shape, or behavior

(3) mutualistic = different organisms live together, all benefiting from the relationship

(4) parasitic = one organism lives in or on another organism, causing harm to the other organism

(5) saprophytic = an organism feeds on the dead remains or the products of other organisms

Each of the following items describes a relationship that refers to one of the five categories defined above. For each item, choose the one category that best describes the relationship. Each of the categories above *may* be used more than once in the following set of items.

5. After a female cougar is killed, its mate returns to the den and devours the kittens.

   After the female died, the relationship of the male cougar to the kittens is

   (1) cannibalistic
   (2) mimicry
   (3) mutualistic
   (4) parasitic
   (5) saprophytic

6. The monarch butterfly is a common, orange-and-black butterfly often seen in fields around milkweed plants. The viceroy butterfly is slightly smaller than the monarch but it is also orange-and-black and looks like the monarch. Birds tend to leave both butterflies alone because the larger monarch does not taste good and it is difficult to tell both butterflies apart.

   The relationship of viceroy to monarch is

   (1) cannibalistic
   (2) mimicry
   (3) mutualistic
   (4) parasitic
   (5) saprophytic

7. Penicillium is a green mold that is commonly found growing on grape jam. The penicillium mold spreads and consumes the grape jam.

   The relationship of penicillium to jam is

   (1) cannibalistic
   (2) mimicry
   (3) mutualistic
   (4) parasitic
   (5) saprophytic

8. A lichen is thought of as a plant but it is actually composed of two organisms; a fungus grows together with an alga. The fungus supplies the alga with water and some protection while the alga supplies the fungus with carbohydrates for food.

   The relationship of the two organisms composing the lichen is

   (1) cannibalistic
   (2) mimicry
   (3) mutualistic
   (4) parasitic
   (5) saprophytic

9. The sea lamprey has a sucking mouth and a spine-covered tongue. It attaches itself to the side of a lake trout with its mouth and tears away at the lake trout's flesh using its tongue. After either killing the trout or seriously injuring it, the sea lamprey releases itself to seek another lake trout.

   The relationship of sea lamprey to lake trout is

   (1) cannibalistic
   (2) mimicry
   (3) mutualistic
   (4) parasitic
   (5) saprophytic

10. The oak daedalea is a fungus that is often found growing on oak tree stumps. The fungus obtains nutrients from the decaying tree stump.

    The relationship of oak daedalea to oak tree stump is

    (1) cannibalistic
    (2) mimicry
    (3) mutualistic
    (4) parasitic
    (5) saprophytic

Answer Key

1. Content: Earth Science
   Cognitive Level: Comprehension
   Answer: 2

   This item requires the examinee to understand the following points about the graphic presentation: due to the rotation of the earth, London passes through a time zone before Miami, so Miami time is earlier than London time; there are 24 time zones; each time zone is either one hour ahead or one hour behind the adjacent zones. London is 5 time zones ahead of Miami; thus, the answer is obtained by adding 5 hours to Miami time.

2. Content: Physics
   Cognitive Level: Application
   Answer: 2

   This item requires an understanding of the relationship between the temperature and the volume of a gas (Charles' Law), and the application of this understanding to the example of an inflated automobile tire that gradually increases in temperature.

3. Content: Chemistry
   Cognitive Level: Analysis
   Answer: 4

4. Content: Chemistry
   Cognitive Level: Evaluation
   Answer: 5

   These two items are examples of the difference between an analysis and an evaluation level item. The third item asks the examinee to distinguish facts from opinion. Statements A and C can be chemically proven while B and D are based on someone's view or judgment. The fourth item asks the examinee to make a judgment about the accuracy of the statements based on assumed criteria. Neither statements B nor D could be subjected to a chemical analysis.

5. Content: Biology
   Cognitive Level: Application
   Answer: 1

6. Content: Biology
   Cognitive Level: Application
   Answer: 2

7. Content: Biology
   Cognitive Level: Application
   Answer: 5

8. Content: Biology
   Cognitive Level: Application
   Answer: 3

9. Content: Biology
   Cognitive Level: Application
   Answer: 4

10. Content: Biology
    Cognitive Level: Application
    Answer: 5

Items 5 to 10 require the examinee not only to comprehend several predefined categories but to classify new information within the definitions of one of the categories. The categories used could come from topics such as the classification of matter, the classification of organisms, ecosystems, astronomical observations, or electromagnetic waves.

Item 5 describes the male cougar feeding on the flesh of its own babies, an example of cannibalism.

Item 6 describes the monarch and viceroy butterflies. Although they are different in size, their coloration is so identical that they are avoided by knowledgeable predators. The viceroy escapes predation due to mimicry.

Item 7 describes an organism (mold) feeding on the product (jam) of another organism (grape plant). This is a saprophytic relationship.

Item 8 describes an alga and a fungus existing together in a relationship called a lichen. As described, the relationship is an example of mutualism.

Item 9 describes one organism feeding on another living organism, an example of parasitism.

Item 10 describes a fungus feeding on the remains of another organism, an example of a saprophytic relationship.

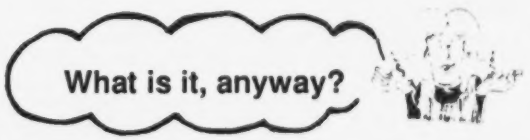
From this review of the GED Tests it is clear that students taking the tests will need strong analysis and evaluation skills in order to pass. GED teachers helping students prepare for the tests will need a clear understanding of the critical thinking process to be able to:

(l) evaluate instructional materials for good critical thinking activities;

(2) understand what kinds of questions and skill levels students will encounter in the GED testing situation; and,

(3) develop strategies which encourage use of the reasoning skills the tests demand.

CRITICAL THINKING:



Critical thinking is a productive and positive process involving both emotion and reason. During critical thinking we identify and challenge assumptions and try to imagine and explore alternatives.

Stephen Brookfield/Developing Critical Thinkers

Critical thinking is an expanding exploratory process rather than simply a progressively narrowing process of problem solving.

James Kinney/Fostering Critical Thinking

Critical thinking is an active, purposeful, and organized effort to make sense of our world by carefully examining our thinking and the thinking of others in order to clarify and improve our understanding.

John Chaffee/Thinking Critically

Thinking, so defined, is any mental activity that helps formulate or solve a problem, make a decision, or fulfill a desire to understand; it is a searching for answers, a reaching for meaning.

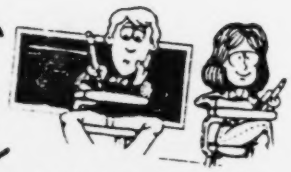
Vincent Ruggiero/Teaching Thinking across the Curriculum

This sampling of definitions reflects the variety of ideas and perspectives on critical thinking found in the current literature. From these different perspectives and ideas we can identify common elements that are often repeated. The following synthesis presents these common elements in a format that students can easily understand (A copy for classroom use is included in the activities section).

Think about yourself	Critical thinking is reflective thinking. As critical thinkers, we look at ourselves first. How does this situation make me feel? How do I react to what the speaker or writer is saying? Being aware of how we feel about a subject gives us clues about thinking. For example, if we get angry when political subjects come up in discussions, we might do some thinking about why.
Think about the information	Critical thinking is careful thinking. As critical thinkers, we look at each part of the situation and how the parts fit together. We weigh the evidence for quality, questioning where it comes from and whether the evidence is sufficient. We also consider the logic, asking whether the leaps from one statement to the next are appropriate.
Think about others	Critical thinking is open-minded thinking. As critical thinkers, we look at the situation from different directions. We consider other people's perspectives, how they might feel or think about the subject and why they might want readers to react a certain way. We revise or change our thinking if we see that we need to.
Act on your conclusions	Critical thinking leads to action. Reflective, careful, and open-minded thinking increases our confidence in our opinions. When we are confident about our opinions, we are willing to speak and act.

Most of us know the basics of thinking. These are skills we use in many ways everyday. However, it's also true that most of us need to become more conscious of the ways in which we use those thinking skills. When we better understand what critical thinking is and develop our critical thinking strategies through practice, we add more and stronger tools to our "toolbox for life."

CRITICAL THINKING: What helps in the classroom?



As you work with your students to develop their critical thinking skills, you will probably see varied levels of ability within the group. There are several factors which directly affect our development as critical thinkers. An understanding of these factors can help you evaluate the strengths and weaknesses of individual students and plan for effective instruction in critical thinking.

Factors Which Affect Critical Thinking

Knowledge and Experience

Knowledge about things and an understanding of the rules or procedures for doing things affect our ability to think critically. In addition, implicit theories or assumptions we use to structure, interpret, and make sense of the world give each of us a unique personal perspective. This also affects our thinking.

Implications for the Classroom

The ABE classroom is a rich source of ideas, facts and data. Instructional activities should provide students access to new information and link that information to the knowledge they already have. New information should be presented in concrete ways initially; later, abstract applications can build on good understanding at a concrete level. To facilitate this connection, activities should be tied to students' experiences and interests. Most people can and do think analytically but have difficulty doing so in unfamiliar contexts. Activities should begin in a familiar context and then move outward to larger contexts, expanding students' knowledge and experience base in a way that is still rooted in their lives.

Group discussion presents excellent opportunities to explore our own and others perspectives. We can reach a better understanding of the "filtering process" that goes on as we each interpret information through our own set of perspectives.

Factors Which Affect Critical Thinking

Intellectual Skills & Strategies

Comprehension skills allow us to relate new experiences to what is already known. We are able to "hang" this information on the SCHEMA or organizational structure that already exists in our brain. Information gathering skills also play a role in the critical thinking process. Finally, evaluation strategies help us come to conclusions about the subject being considered.

Detailed lists of individual "skills" can be found in every critical thinking workbook: classification, relationships comparison,conclusions, fact and opinion, fallacies, and.....
.....

While using some of this terminology may be helpful in instruction, a holistic understanding of the *critical thinking process* is more valuable.

Implications for the Classroom

Explicit instruction in and discussion of a number of comprehension skills is valuable. Problem areas include:

1) isolating the problem;
2) delineating problems too closely;
3) understanding various viewpoints;
4) stereotyping; and,
5) failing to use all input.

Provide specific instruction in these areas and PRACTICE, PRACTICE, PRACTICE!

To help students develop a flexible information gathering approach, teachers can structure activities so that several strategies are needed to address a problem. Group activities allow students to see different problem-solving "styles" in action. Open discussion of various styles and strategies as well as identification of how/when certain strategies would be most appropriate can help students integrate new techniques into their "toolbox."

Provide learning activities which model the use of evaluation criteria. Students need to learn to apply both logical and affective criteria during evaluation.

Factors Which Affect Critical Thinking	Implications for the Classroom
Attitudes & Dispositions In a classic study by Bloom and Broder, good problem solvers were found to be more aggressive, confident, tenacious and attentive to detail. They exhibit "constructive discontent"--they are willing to make waves and rock the boat a little!	An open and accepting classroom where many perspectives are aired and accepted in discussion will encourage more confident students to model the behaviors of good problem solvers for their peers. Some of these behaviors can best be learned by the others through encouragement and reinforcement; others can be a direct part of instruction, especially tenacity and attention to detail.
The Thinking Environment The structure of the classroom itself is the final factor that affects critical thinking.	There is much the teacher can do to create an environment which encourages the learning and use of critical thinking skills. Of primary importance is the establishment of a supportive emotional and intellectual setting. Variety is also important. The more we vary the activities, the more flexible our students will become--applying more strategies to more situations. Lesson planning should include writing activities, discussion, individual skill practice, readings, role-playing, simulations, case studies, buddy or small group work and so on. An interactive learning environment will further facilitate critical thinking. Discussion and group interaction are natural and effective ways to encourage awareness and provide opportunities to see critical thinking behaviors in action.

(based on research synthesized by Robert J. Yinger in Fostering Critical Thinking)

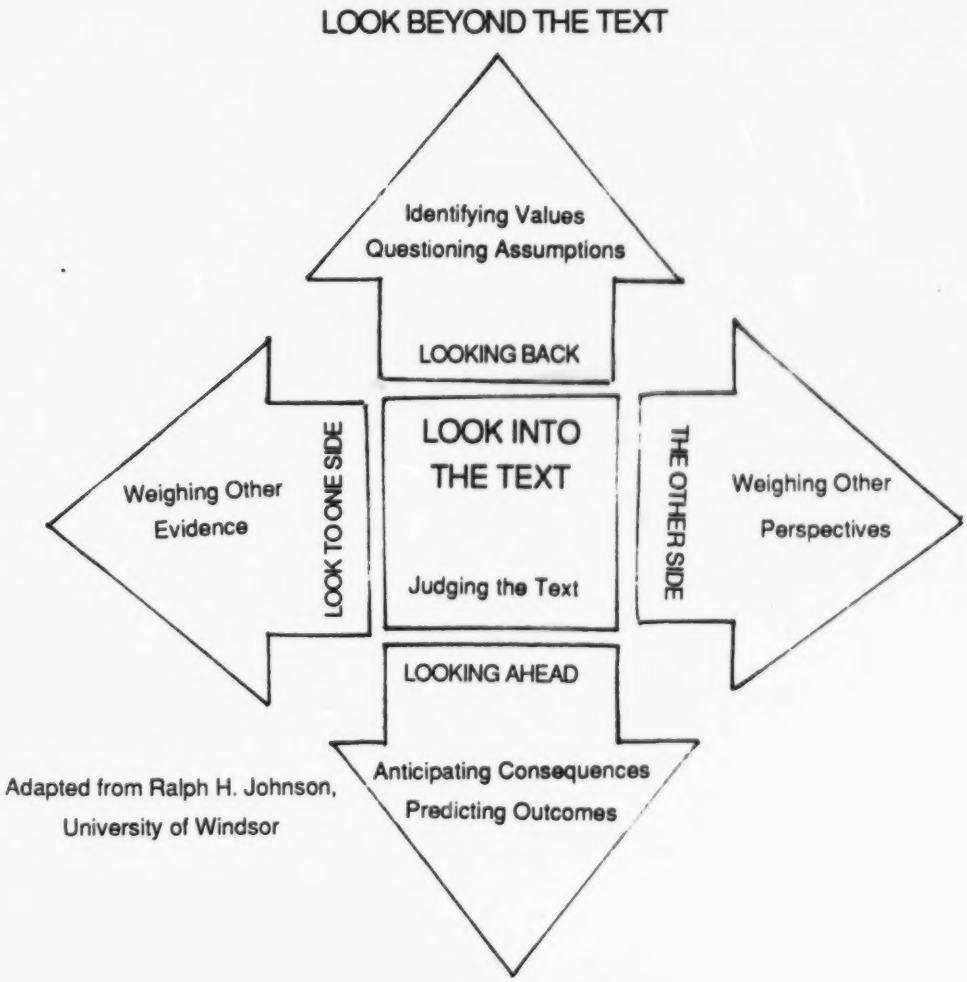
It should come as no surprise that research shows the learning of critical thinking is facilitated in classrooms where the teacher is strongly committed to encourage critical thinking. You have a tremendous opportunity to enhance students' abilities by making a commitment to the idea of critical thinking as an essential tool for your students and acting on that commitment. The activities section of this ideabook offers you teaching ideas to support that commitment!

ACTIVITIES SECTION

QUESTIONING STRATEGIES

Using questions to encourage critical thinking

In the GED testing situation, examinees will be asked to work with the written ideas of others: a difficult task because these ideas have to be fit into the student's own experiences and then interpreted and analyzed. It will be important for students to clearly understand the ideas presented in the text AND carefully evaluate those ideas. The chart below provides a visual interpretation of that process: **looking into the text and looking beyond the text.**



Adapted from Ralph H. Johnson, University of Windsor

One of the best ways to help students internalize these 2 steps is to ask questions that walk them through the thought processes involved. Each classroom activity can be more productive with good questioning. The lists of questions that follow should give you a good start!

LOOKING INTO THE TEXT

1. What does this passage say?
2. Is the issue clear?
3. Do you understand the issue?
4. Have you stated it fairly?
5. Are the ideas clear?
6. What reasons are given?
7. Do you have to analyze any ideas?
8. How can we know whether or not this is true?
9. What would it be like for this claim to be true? False?
10. Do you clearly understand the difference between T/F on this issue?
11. What facts are relevant?
12. Are we omitting any relevant facts?
13. What evidence would count for this claim?
14. What evidence would count against this claim?
15. How can you get the evidence you need?
16. Is this set of categories the most useful?
17. Would another set be better?
18. Why would someone else make different groups?
19. What does this passage imply?
20. What inferences are you making?
21. Are they good inferences?
22. To what conclusion have you come?
23. What is my evidence?
24. Are you evaluating everything?
25. What criteria should you include in the evaluation?
26. What are the criteria for judging solutions in this case?
27. What are some bad ways of trying to solve the problem?
28. What other solutions can you think of?
29. How do the solutions compare with each other?
30. What are their advantages and disadvantages?
31. If this fact (X) about the situation were different, would it change our choice of solutions?
32. What do you need to know to settle the issue?

LOOKING BEYOND THE TEXT

1. What does this passage assume?
2. Why do people make this assumption?
3. What assumptions are you making?
4. What would someone who disagreed with you say about the issue?
5. What does the author claim about this issue?
6. Where did he get his information?
7. Does this information contradict anything you know or suspect to be true?
8. Is this person (the author) in a position to know?
9. Is there any reason to doubt him?
10. Has he been reliable in the past?
11. Does he have anything to gain by convincing others to see the issue as he does?
12. Does the text favor one perspective?
13. Is this belief true?
14. Can youthink of reasons for this belief? Against it?
15. Which argument do you think is strongest and why?
16. Is this belief true?
17. Can you think of reasons for this belief? Against it?
18. What are some of the probable consequences of these actions?
19. What does X say? What does Y say? Could they both be true?
20. How would you feel if someone acted this way toward you?

From 31 Principles of Critical Thinking (The Center for Critical Thinking & Moral Critique)

TEACHING SUGGESTIONS

Sample lessons and extending activities built around critical thinking

Building activities around commercially prepared materials

A. The heads of state of 100 nations are coming to one city for a meeting. What are some things that each of the following people should anticipate? Write your answers on the lines.

1. the chief of police _____

_____

_____

2. the director of traffic coordination _____

_____

_____

3. the restaurant owners _____

_____

_____

4. the stores _____

_____

_____

5. the newspaper editors _____

_____

_____

B. Who else in the city may be affected by the meeting and what should they anticipate?

_____

_____

_____

From
CRITICAL THINKING FOR ADULTS
Barnes, Burgdorf & Wenck
Steck-Vaughn Company
Austin, Texas 1987

SUGGESTIONS FOR USING PAGE 11

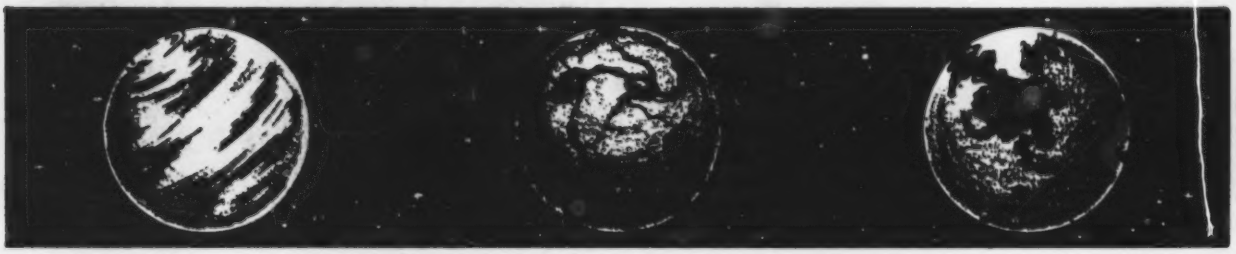
ROLE PLAY: Before using the text, present the scenario as if the visitors were coming to your city. Ask students to role play committee members who have been assigned the task of planning for the dignitaries' visit. As a committee, brainstorm about the different concerns which should be considered by the community.

CLASSIFY: Group these concerns in ways that make sense to the committee, experimenting with several different ways to categorize.

INDIVIDUAL ASSIGNMENT: Direct the students to page II. Have them take the concerns which were identified during the brainstorming session and assign them to the individuals listed in number I-5. Then have them identify individuals who should also be involved in preparation for the visit. Finally, discuss this as a group to compare assignments and answers on Part B.

WRITING: Have the committee draw up a plan of action based on their discussion. This should list recommendations from the committee for concerns to be addressed and persons to involve in planning.

Imagine that it is the year 3000. All Earth people must choose a new planet on which to live. Their choices are the planets Alpha, Beta, or Gamma. Read the descriptions of each planet.



Alpha People do not do physical labor. It is done by machines. Children are raised in nurseries. When they become adults, people work in computer centers or at television broadcasting facilities dedicated to entertainment.

Beta Children are raised at home. Everyone must either attend school or work. All Beta people live exactly the same kind of life. Special awards and prizes, however, are given to citizens who perform special acts for their planet.

Gamma Gamma is known as the old-fashioned planet. Each family has a farm and is expected to provide everything for itself, from food to clothing and housing. There are no schools on Gamma. Children learn their parents' tasks and carry on the work of the farm when they grow up.

A. None of these three planets may suit you exactly. But suppose that you must choose **one** of them as your new home. Which planet would you choose? _____

Why? _____

_____

_____

B. Name three changes you would like to bring about on the planet you chose.

1. _____

2. _____

3. _____

From
CRITICAL THINKING FOR ADULTS
Barnes, Burgdorf & Wenck
Steck-Vaughn Company
Austin, Texas 1987

SUGGESTIONS FOR USING PAGE 17

DISCUSSION: Have students read the information given on page 17 about the three planets on which they may choose to live. Encourage them to brainstorm about what life would be like on each planet based on the facts they've been given. After identifying conditions on the planets, discuss the consequences of each (cause and effect). For example: What would happen if people did not do physical labor?

INDIVIDUAL ASSIGNMENT: After the discussion, ask students to respond to part A and B on the worksheet.

WRITING: Have students write an extending paragraph telling why they decided on certain changes and how they will impact their planet.

Students could also write a letter to a friend or relative describing life on their planet.

Let students pretend they're going to visit one of the other two planets--then write a letter home describing life as they see it there.

OFFICER FACES REVIEW BOARD

Officer Jones has been on the police force for many years. Last night on a nearly deserted street, he heard cries for help. "I'm being robbed!" a frantic voice screamed.

A man ran from a darkened store. Officer Jones chased the man and shouted for him to stop. The man paused, turned to face the officer, and then began raising his hand in front of his body. Officer Jones raised his pistol and fired. The man fell wounded to the street. Just as Officer Jones reached the unconscious man, several other police officers arrived in a patrol car.

When Officer Jones arrived at the precinct station today, he learned that the man he shot was not the robber. He was actually a customer in the store who had witnessed the robbery and was pursuing the thief. Officer Jones also learned that what he thought was a weapon in the man's hand was actually a flashlight.

Tomorrow, Officer Jones must appear before the Police Review Board. The Board will decide whether he should be punished for shooting the man.

1. Do you think that Officer Jones should be punished for shooting the man? _____

   Explain your answer. _____

   _____

   _____

2. Can anything be done to prevent such accidents from happening again? _____

   Explain your answer. _____

   _____

   _____

From
CRITICAL THINKING FOR ADULTS
Barnes, Burgdorf & Wenck
Steck-Vaughn Company
Austin, Texas 1987

SUGGESTIONS FOR USING PAGE 19

Follow the critical thinking steps in working with this text.

READING: Direct students to read the text completely and review the facts before answering the questions about the story. Then write their opinions about this issue with complete explanations of them.

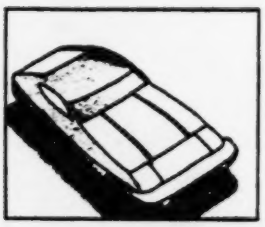
DISCUSSION: Guide students through a discussion of their personal reactions to police, violence, crime, etc. Help the students discover how their feelings about the subject may have affected their responses. Use the question lists to stimulate critical thinking. Have students jot notes to themselves as the discussion progresses and ask those willing to share with the group to do so.

Look at the evidence in the text to evaluate it: What's the quality? What questions do the readers still have? What evidence is missing? Look at the logic behind different positions taken by the students.

Consider the perspectives of the individuals involved in the situation. How might Officer Jones feel? How would the shop owner feel? What feelings would the customer's family experience?

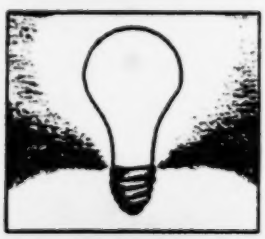
DISTINGUISHING OPINION FROM FACT

Each picture represents an invention that has greatly changed the way people live. In each case the invention has also caused problems in our civilization. Write one statement of fact about the changes the invention has brought. Then write an opinion about the changes and/or problems.

1. 

2.

3.

4. 

5.

From
CRITICAL THINKING FOR ADULTS
Barnes, Burgdorf & Wenck
Steck-Vaughn Company
Austin, Texas 1987

SUGGESTIONS FOR USING PAGE 26

INDIVIDUAL ASSIGNMENT: Introduce the activity on page 26, but modify it by asking each student to write ten statements about the car and how it has changed the way people live. They should write ONLY on the impact of the car for the first part of the assignment.

DISCUSSION: List statements shared by individuals, asking the group to classify each as it is given: fact OR opinion. Put each statement in the correct column of the chart you have drawn on the board (below).

FACT	OPINION

INDIVIDUAL ASSIGNMENT: Have the students finish the page. Check work individually to see that the concept of fact and opinion is clearly understood.

WRITING: Ask students to write individual paragraphs explaining which of the five inventions is most important. Then have students share their perspectives in a discussion.

DRAWING CONCLUSIONS

A **conclusion** is a final statement you can make based on the facts given to you. Read the articles below. Make a check by each conclusion that could **not** be made from the facts given in the article.

A. Soil may be described as the earth's cover where the land stops and the air begins. Every ounce of fertile soil normally contains more living organisms than the human population of the entire world.

The soil provides a very effective sewage and waste disposal system. Earth's materials are recycled in the soil as life goes through generation after generation. It is unfortunate that much soil has been damaged through misuse, erosion, and the use of harmful chemicals.

_____ 1. Even poor soil is full of living things.

_____ 2. Good soil contributes to the cycle of life on Earth.

_____ 3. The earth's surface is covered with soil.

_____ 4. People have deliberately damaged the soil.

_____ 5. Scientists have carefully studied soil.

B. On May 25, 1961, President John Kennedy announced that the U.S. would land a person on the moon before the end of the decade. This tremendous mission cost $24 billion. The goal was finally reached when Apollo 11 landed on the moon's surface on July 20, 1969. Neil Armstrong, Edwin Aldrin, and Michael Collins were on board Apollo 11. Armstrong and Aldrin spent twenty-one hours and thirty-seven minutes on the moon before returning to the command ship.

_____ 1. Three astronauts walked on the moon.

_____ 2. The Apollo trip was costly.

_____ 3. President Kennedy was interested in the trip to the moon.

_____ 4. Several people wanted to go on the moon mission.

_____ 5. The astronauts faced incredible dangers.

From
CRITICAL THINKING FOR ADULTS
Barnes, Burgdorf & Wenck
Steck-Vaughn Company
Austin, Texas 1987

SUGGESTIONS FOR USING PAGE 30

DISCUSSION: Read Part A. Discuss whether statement #1 is a conclusion or not. Use questions from the list or your own that would help students determine what evidence in the passage supports their decision. List that evidence on the board as it is established.

INDIVIDUAL ASSIGNMENT: Ask the students to decide #2 - #5 on their own. They should make notes of their evidence as they work.

DISCUSSION: When students have finished, compare answers as a group; have students support their answers.

READING: Have each student read Part B and make an individual decision about the statements that follow. Check their work and ask them for the evidence they believe supports their decision.

GIVING DEFINITIONS AND EXAMPLES

Words may be defined in a variety of ways. A definition may include synonyms (other words which mean about the same). Sometimes it is easier to define a word by giving examples (names of objects which belong to that group or category). A word may also be defined by contrasting it with an antonym (a word which is opposite in meaning).

Label each definition below as **S** for synonym, **E** for example, or **A** for antonym. Study the examples below.

S gentle: mild, smooth, soft

E gentle: a mother's tender touch

A gentle: not rough or harsh

_____ 1. fruit: tangerines, apples, and oranges

_____ 2. fluid: water, mercury, and gasoline

_____ 3. solid: not a liquid or a gas

_____ 4. gazette: newspaper, journal

_____ 5. annoy: make angry, disturb, trouble

_____ 6. fabric: velvet, canvas, and linen

_____ 7. uneasy: not comfortable; not easy in manner

_____ 8. righteous: opposed to wrong

_____ 9. irksome: tiresome; tedious

_____ 10. feline: lions, tigers, leopards, and panthers

_____ 11. bare: without covering; not clothed

_____ 12. bind: tie together, hold together, fasten

_____ 13. narrow: not wide; having little width

_____ 14. taint: stain or spot; trace of decay, corruption, disgrace

_____ 15. percussion: musical instruments such as drums or cymbals

From
CRITICAL THINKING FOR ADULTS
Barnes, Burgdorf & Wenck
Steck-Vaughn Company
Austin, Texas 1987

SUGGESTIONS FOR USING PAGE 56

DISCUSSION: Discuss the three categories used to define words in this assignment: **synonym, example, and antonym.** Then label #1 - #5 as a group, explaining each choice.

INDIVIDUAL ASSIGNMENT: Ask students to label #6 through #15 on their own. Suggest they compare each set to the examples given to double check their choice.

DISCUSSION: Put these or other abstract descriptors on the board:

fear
success
love
respect
commitment

As a group, select one word and explore its meaning by generating synonyms, examples and antonyms. Write your ideas on the board.

WRITING: Have the students try putting these ideas into "poem" form--either as a group or individually.

Love is : ____E____.
Love is : ____E____.
Love is : ____E____.

Read each group of sentences below. Decide which sentence seems unrelated to the others, and draw a line through it. Then think of a **main-idea**, or **topic**, sentence that could be used to introduce the remaining three sentences. Write a paragraph, using your topic sentence and following it with the three related sentences.

A. 1. Native Americans could tell direction in the forest by examining where moss grew.
2. Broken branches and twigs were clues to the paths taken by forest animals.
3. Native Americans told a variety of myths and legends.
4. Keen ears could pick up the special sounds made by different birds and mammals.

B. 1. The investigations of scientists have led to the cures for many diseases.
2. Scientists hold conventions frequently.
3. A scientist's patient investigations can also unfold important facts about the earth and about the universe.
4. The results of any investigation lead to new and fascinating questions which may be answered by further study.

From
CRITICAL THINKING FOR ADULTS
Barnes, Burgdorf & Wenck
Steck-Vaughn Company
Austin, Texas 1987

SUGGESTIONS FOR USING PAGE 58

DISCUSSION: Read passage A as a group. Following the guidelines given, decide which of the four sentences should be omitted. Ask students to suggest a topic sentence which could be used to introduce the other three sentences. Use questions to help them verify that each of the three sentences being considered supports the topic sentence they choose. Write a paragraph on the board using the topic sentence and three supporting sentences.

INDIVIDUAL ASSIGNMENT: Students do part B individually, following the same steps modeled during class discussion. Check with each student individually to make sure they are understanding the relationship between supporting ideas and the main idea (topic sentence).

A. Complete each list below by writing three criteria you use for judging the person or thing.

1. A person is a good friend if he or she

   a. _____

   b. _____

   c. _____

2. A school is a good school if it

   a. _____

   b. _____

   c. _____

3. A successful person is someone who

   a. _____

   b. _____

   c. _____

B. Study your responses to part A. Then complete the exercises below.

1. Do you expect that your lists will be exactly like those of your classmates?

   _____

2. Tell why or why not. _____

   _____

   _____

   _____

   _____

From
CRITICAL THINKING FOR ADULTS
Barnes, Burgdorf & Wenck
Steck-Vaughn Company
Austin, Texas 1987

SUGGESTIONS FOR USING PAGE 71

DISCUSSION: Open the discussion by explaining the meaning of the word criteria using familiar examples: criteria for evaluating a car, a movie, a vacation, etc. Brainstorm criteria for "friendship" and show students how to complete the sentences by choosing one of the ideas generated by the group or one of their own to fill in example Ia.

INDIVIDUAL ASSIGNMENT: Then ask students to complete the other examples in part A and do part B.

DISCUSSION: When students have finished their individual work, ask them to discuss their answers with the others, comparing their responses. Discuss ways students' experiences may color their perceptions of friends, school, success. Use the question list to clarify the assumptions and values that affect our attitudes.

JUDGING ACCURACY

In your reading and listening, you sometimes come upon statements that your own experience and common sense tell you are not accurate. These statements may take the form of opinions, invalid generalizations, or simple lack of knowledge.

A. Read the following paragraph. Underline the obvious errors.

> An ancient member of the cat family, the saber-toothed tiger was almost as large as a dinosaur. The name "saber-toothed" describes this giant cat's front teeth, which were short and sharp like the teeth of a saw. With its short, muscular legs and powerful shoulders and neck, the saber-toothed tiger was built for strength and speed. It was able to overtake its prey quickly, then leap upon the victim. Certainly the saber-toothed tiger was the most dangerous of all prehistoric animals! This particular cat originated in Asia and then spread through Europe, Africa, and North and South America. Today, explorers of forests and jungles are constantly on the lookout for this wild and dangerous beast.

B. Rewrite the paragraph above to make it factually correct. Retain the parts that are already free of error. You may wish to consult reference books to make sure your own paragraph is accurate.

From
CRITICAL THINKING FOR ADULTS
Barnes, Burgdorf & Wenck
Steck-Vaughn Company
Austin, Texas 1987

SUGGESTIONS FOR USING PAGE 72

This activity calls for reference books: encyclopedias or dictionaries.

READING: Ask the students to read the text carefully. Have them underline any statements that they believe may be untrue. Those statements need to be checked. Students may work in small groups with the reference materials provided to verify the facts in the text.

DISCUSSION: Discuss the errors found in the text and see if they can be grouped or categorized.

WRITING: Have students rewrite the paragraph as assigned on page 72. Ask volunteers to share their rewritten paragraphs. Discuss ways each student verified the correct information and changed the errors in the original paragraph.

DISCUSSION: Discuss credibility of printed information. Compare sources such as The New York Times and The National Enquirer, for accuracy and credibility. Examine the ways we evaluate what we read, contrasting the information with knowledge based on personal experience.

The same event can be judged in several different ways, depending on who is doing the judging and what the criteria are.

Each statement below tells about a storm. After you read each statement, decide which person listed in the box probably said it. Then write the criteria that person probably used.

meteorologist	young child	artist	homeowner

1. The storm has taken on a most unusual course.

_____

_____

_____

_____

2. The storm is terribly destructive.

_____

_____

_____

_____

3. The storm is beautiful. _____

_____

_____

_____

4. The storm is scary. _____

_____

_____

_____

From
CRITICAL THINKING FOR ADULTS
Barnes, Burgdorf & Wenck
Steck-Vaughn Company
Austin, Texas 1987

SUGGESTIONS FOR USING PAGE 73

This activity requires xerographic copies of newspaper articles.

DISCUSSION: Ask students to read the instructions. Discuss the meanings of the terms in the box, especially meteorologist. Then brainstorm as a group about #l. Deçide on an answer and develop a list of possible criteria that the individual might have used.

INDIVIDUAL ASSIGNMENT: Have students work on #2-4 independently, developing their own sets of criteria as they work.

READING/ DISCUSSION: Give students copies of articles from newspapers or magazines related to a specific issue or event. Read and compare the account written in one article with that of another. Use your question list to discuss multiple perspectives.

Worksheet samples provided in this section of the Ideabook are from CRITICAL THINKING FOR ADULTS, which is described below.

CRITICAL THINKING FOR ADULTS
Barnes, Burgdorf & Wenck
Steck-Vaughn
Austin, Texas
1987

This workbook contains removable one-page lesson sheets. The lessons are grouped into units headed Social Studies, Science, Literature and the Arts, Writing, and Math.

The critical thinking concepts involved are explained in clearly understandable terms. Written passages are interesting and short. Pictures and graphics enhance the text.

Other available workbooks which target critical thinking skills include:

CRITICAL THINKING Reading, Thinking and Reasoning Skills
(A six part series)
Barnes, Burgdorf & Wenck
Steck-Vaughn
Austin, Texas
1987

Each of these workbooks breaks critical thinking skills into units based on the stages of Bloom's Taxonomy: Knowing, Understanding, Applying, Analyzing, Synthesizing, and Evaluating. The Teacher's Edition contains lesson plans and suggestions for transferring these thinking skills to content area materials.

Each page contains a complete lesson. Terms are understandable; instructions are relatively easy to follow. Photos and drawings are sprinkled throughout these workbooks.

CRITICAL THINKING WITH MATH Reasoning and Problem Solving
Digilio
Contemporary
Chicago, Illinois
1989

This workbook is designed to strengthen thinking skills and problem-solving abilities in a math context. Units are organized from basic skills through more complex skills based on these levels: comprehension, application, analysis, synthesis, and evaluation.

Instructors are cautioned that students must understand the math concepts/processes in these lessons before they can deal with the problems involving thinking skills.

Terminology is clear and concise. Graphics illustrate many of the lessons. Examples are applicable to everyday life.

This is a small sample of commercial materials which are currently available. It is not intended to be a comprehensive list, simply a starting point for you to use when considering materials for your classroom.

Designing and using teacher made activity sheets

While commercially produced materials can provide practice in the critical thinking process, there are often situations in the ABE classroom which call for specific, custom designed worksheets. These can be made by the instructor.

Here are some questions which may help you in developing worksheets to accompany your lessons:

* Is the activity clearly linked to your instructional objective?

* Are your instructions clear and concise?

* Does the worksheet build on a reading, presentation or discussion done in class?

* Will the information on the worksheet and the exercises planned around the activity cause the students to reflect? Make inferences? Draw a conclusion? Compare/contrast the information presented with knowledge based on experience?

* Do the questions or activities provide a springboard for discussion?

* If the worksheet calls for outside verification (through use of reference books, etc.) are these materials available in your classroom?

* Does the worksheet imply that there could be differing perspectives, different answers which are correct?

* Does the worksheet encourage both individual and group activity?

* Does the activity reflect the reading level at which your students operate?

* Have you personalized the activity by using students' names, familiar contexts, or other terms which are recognized by the students to add interest?

CATEGORIZATION: Place each of the following examples into one of the categories given.

patriotism	mendacity	hostility	spite
contempt	benevolence	cordiality	defiance
warmth	friendliness		

Negative Emotions

_____

_____

_____

_____

_____

Positive Emotions

_____

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_____

_____

_____

From
Jackie Shipp
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Dona Ana Branch Community College
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TEACHING SUGGESTIONS

DISCUSSION: Give students the activity sheet. Discuss each of the concepts being considered. Define each and use in contexts which are familiar to the students. Before they begin to write, discuss ways that some of these terms could be both negative and positive.

INDIVIDUAL ASSIGNMENT: Have students complete the chart. Ask them to consider context as they make their choices.

DISCUSSION: Discuss student choices and the reasons for assigning the categories they chose for each example.

CLASSIFICATION: Put the following words into groups.

factory worker	principal
maintenance person	store manager
cashier	secretary
carpenter	plant foreman
stock person	contractor
janitor	supervisor
laborer	teacher
factory owner	

from
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TEACHING SUGGESTIONS

DISCUSSION:

Working with the words on the list, brainstorm with students about different sets of categories which might be used to group these people. This would be a good exercise to use in discussing stereotypes. If students try to group these workers according to job status, type of employment, stereotypical gender divisions within these job categories, and other thought provoking classification schemes, the ensuing discussion should encourage critical thinking!

GROUP ACTIVITY:

Ask the students to think about which classification scheme they would like to try and form groups accordingly. When student groups have assigned each job title to a category, ask volunteers to put the group decisions on the board. Discuss the answers and the differing perspectives which affect our perceptions.

WRITING:

Students may write about one of the job classifications from some specific perspective: typical stereotypes attached to the job, the value of that work to society, the satisfaction the work brings to an individual, or some other focus.

CRITICAL THINKING

Think about yourself	Critical thinking is reflective thinking. As critical thinkers, we look at ourselves first. How does this situation make me feel? How do I react to what the speaker or writer is saying? Being aware of how we feel about a subject gives us clues about thinking. For example, if we get angry when political subjects come up in discussions, we might do some thinking about why.
Think about the information	Critical thinking is careful thinking. As critical thinkers, we look at each part of the situation and how the parts fit together. We weigh the evidence for quality, questioning where it comes from and whether the evidence is sufficient. We also consider the logic, asking whether the leaps from one statement to the next are appropriate.
Think about others	Critical thinking is open-minded thinking. As critical thinkers, we look at the situation from different directions. We consider other people's perspectives, how they might feel or think about the subject and why they might want readers to react a certain way. We revise or change our thinking if we see that we need to.
Act on your conclusions	Critical thinking leads to action. Reflective, careful, and open-minded thinking increases our confidence in our opinions. When we are confident about our opinions, we are willing to speak and act.

Most of us know the basics of thinking. These are skills we use in many ways everyday. However, it's also true that most of us need to become more conscious of the ways in which we use those thinking skills. When we better understand what critical thinking is and develop our critical thinking strategies through practice, we add more and stronger tools to our "toolbox for life."

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